



ANNUAL

WATER QUALITY REPORT

Water testing performed in 2008



PWS ID#: 0464010

Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2008. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.



Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Substances That Could Be in Water

To ensure that tap water is safe to drink, U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

The source of our water is the Tar River. We treat the water at either of two water treatment plants before releasing it to the water distribution system. One plant is located at the Tar River Reservoir, and the other is located on Sunset Avenue across from City Lake. In 2008 we treated and distributed 3.627 billion gallons of water to customers in the City of Rocky Mount and surrounding communities.

To learn more about our watershed on the Internet, go to U.S. EPA Surf Your Watershed at www.epa.gov/surf.

Source Water Assessment

The North Carolina Department of Environment and Natural Resources (DENR) has conducted a Source Water Assessment of our drinking water source. The purpose of the assessment was to determine the susceptibility of the drinking water source to potential contamination. The assessment reported a susceptibility rating of higher for the Sunset Avenue water plant on the Tar River and a rating of moderate for the Tar River Reservoir. These ratings do not imply poor water quality; rather, they signify the system's potential to become contaminated. The complete SWAP Report for the City of Rocky Mount may be viewed on the Web at www.rockymountnc.gov/utilities/water.html. If you have any questions about the assessment, please contact the Source Water Assessment staff at (919) 715-2633.

Community Participation

We want our valued customers to be informed about their water utility. If you want to learn more, please attend our regularly scheduled city council meetings. They are held on the second and fourth Mondays of the month at 4:00 p.m. and 7:00 p.m., respectively. Meetings are held in the City Hall Council Chambers, 331 S. Franklin St., Rocky Mount, North Carolina.

How Is My Water Treated and Purified?

The treatment process is a series of steps. First, raw water is drawn from the Tar River. The water is pumped to a mixing tank where ferric sulfate and caustic soda are added. The addition of these chemicals causes small particles to adhere to one another (called floc), making them heavy enough to settle to the bottom of the tank. Periodically, the sediment is removed from the basins and recycled as a beneficial crop nutrient. Chlorine is added for mid-process oxidation and disinfection. At this point, the water is filtered through layers of finely ground coal and silicate sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges. Chlorine is added again at this point as a precaution against any bacteria that may still be present. (We carefully monitor the amount of chlorine, adding the minimum quantity necessary to protect the safety of your water without compromising taste.) Ammonia is then added to form chloramines, to serve as our residual disinfection agent in the finished water distribution. Finally, sodium hydroxide is added to adjust the final pH and alkalinity, fluoride to promote dental hygiene, and a corrosion inhibitor to protect the distribution system and private piping.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Jay W. Van Hoose, Superintendent of Water Treatment Plants, at (252) 972-1336.

Long-Term 2 Enhanced Surface Water Treatment Rule (LT2)

The U.S. EPA has developed the LT2 rule to improve your drinking water quality. A portion of this rule requires us to test for *Cryptosporidium* and *E. coli* in our source water. Source water comes from the Tar River and has not been through the treatment process.

Our test results show the presence of *E. coli* in the source water. In our testing, WE DID NOT DETECT ANY *E. coli* in the drinking water that left the water plants and was delivered to your homes.

Our test results have shown the presence of *Cryptosporidium* in our source water. Out of eighty (80) samples, we detected three (3) *Cryptosporidium* cysts in the past twenty four (24) months. In previous test results, WE DID NOT DETECT ANY *Cryptosporidium* in the drinking water that left the water plants and was delivered to your homes.

We are meeting or exceeding all current U.S. EPA and State of North Carolina drinking water standards. The testing for the LT2 rule will determine new standards and treatment methods in the future.

What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, toothbrush holders and on pets' water bowls is caused by the growth of the bacterium *Serratia marcescens*. *Serratia* is commonly isolated from soil, water, plants, insects, and vertebrates (including man). The bacteria can be introduced into the house through any of the above mentioned sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to continually clean and dry the involved surfaces to keep them free from bacteria. Chlorine-based compounds work best, but keep in mind that abrasive cleaners may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleach can be used periodically to disinfect the toilet and help to eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence.

Serratia will not survive in chlorinated drinking water.



Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Rocky Mount is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent according to government estimates).

The Food and Drug Administration

is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per

gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloramines ¹ (ppm)	2008	[4]	[4]	2.5	ND–4	No	Water additive used to control microbes
Chlorine (ppm)	2008	[4]	[4]	3.0	0.1–4.0	No	Water additive used to control microbes
Fluoride (ppm)	2008	4	4	0.78	ND–1.4	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2008	60	NA	25	4–59	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2008	80	NA	62	33–116	No	By-product of drinking water chlorination
Total Coliform Bacteria ² (% positive samples)	2008	5% of monthly samples are positive	0	1.6	NA	No	Naturally present in the environment
Total Organic Carbon [TOC] ³ (ppm)	2008	TT	NA	2.3	1.8–2.7	No	Naturally present in the environment
Turbidity ⁴ (NTU)	2008	TT = 1 NTU	NA	0.29	0.07–0.29	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2008	TT = 1 NTU	NA	100	NA	No	Soil runoff

UNREGULATED SUBSTANCES				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromodichloromethane (ppb)	2008	12	9–22	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2008	2	1–4	By-product of drinking water disinfection
Chloroform (ppb)	2008	45	24–90	By-product of drinking water disinfection
Sodium (ppm)	2008	41	40–41	Leaching from natural deposits
Sulfate (ppm)	2008	58	52–65	Leaching from natural deposits

IDSE SAMPLING RESULTS ⁵				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Haloacetic Acids [HAA]- IDSE Results (ppb)	2008	41	18–120	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–IDSE Results (ppb)	2008	97	71–143	By-product of drinking water disinfection

¹ During the month of January we recorded a reading of 0.0 ppm of chloramines because we are required to convert the distribution system to free chlorine. During this time we maintained the distribution system with a minimum of 0.2 ppm of free chlorine as required by the State of North Carolina.

² We had one sample out of 63 samples that was reported as positive. All other samples were reported as non detect.

³ Depending on the TOC in our source water, we MUST have a certain percent removal of TOC or we must achieve alternative compliance criteria. For 2008 our average source water TOC was 8.1, our lowest amount detected was 5.4, and the highest was 10.9 ppm (mg/L). The average percent removal was 71.1% with the highest percent removal of 78.4% and the lowest of 64.1% removal.

⁴ Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. The turbidity rule requires that 95 percent or more of the monthly samples must be less than or equal to 0.3 NTU.

⁵ We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (Maximum Residual

Disinfectant Level): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric

Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.